

U.S.S.N. 10/707,366

- 3 -

81092490FGT1889

**IN THE CLAIMS:**

1. (currently amended) A simulation system for simulating an operation of an automotive vehicle comprising:
  - an input providing vehicle information and path information;
  - a controller having a vehicle computer model therein, said controller programmed to determine a rear side slip angle of a vehicle computer model;
  - determine an initial steering wheel input to the computer model;
  - when the rear side slip angle is greater than a threshold, determine a look ahead scale factor;
  - when the rear side slip angle is greater than the threshold, increase a look ahead point as a function of the look ahead scale factor;
  - determine a first steering wheel angle input to the computer model at a time later than the initial steering wheel angle input by comparing the look ahead point and the intended path;
  - operate the computer model with the initial steering wheel angle input; and
  - generate an output in response to the vehicle model and [[an]] the initial steering wheel input or first steering wheel input.
2. (original) A system as recited in claim 1 wherein the threshold is about 15 degrees.
3. (previously presented) A system as recited in claim 1 wherein said controller is programmed to determine a longitudinal vehicle velocity and a lateral vehicle velocity and determining the rear side slip angle as a function of the longitudinal vehicle velocity and the lateral vehicle velocity.
4. (original) A system as recited in claim 1 wherein said controller is programmed to determine a look ahead scale factor as a function of the rear side slip angle.

U.S.S.N. 10/707,366

- 4 -

81092490FGT1889

5. (original) A system as recited in claim 1 wherein said controller is programmed to determine a look ahead factor as a function of an exponential of the rear side slip angle.

6. (original) A system as recited in claim 1 wherein said controller is programmed to determine a look ahead factor as a function of an exponential of a product of the rear side slip angle and a constant.

7. (original) A system as recited in claim 6 wherein the constant is about .02.

8. (previously presented) A system as recited in claim 1 wherein, when the rear side slip angle is not greater than the threshold, the controller is programmed to determine an unscaled look ahead factor.

9. (original) A system as recited in claim 1 wherein the controller is programmed to determine a steering wheel angle input when the vehicle is not on target.

10. (currently amended) A method of operating a vehicle computer model having vehicle information and path information therein, the method operating on a digital computer system and comprising:

determining a rear side slip angle of a vehicle computer model;

determining an initial steering wheel angle input;

when the rear side slip angle is greater than a threshold, determining a look ahead scale factor;

when the rear side slip angle is greater than the threshold, increasing a look ahead point as a function of the look ahead scale factor;

determining a first steering wheel angle input to the computer model at a time later than the initial steering wheel angle input by comparing the look ahead point and the intended path;

U.S.S.N. 10/707,366

- 5 -

81092490FGT1889

operating the computer model with the initial or first steering wheel angle input; and

outputting results of the operating step.

11. (original) A method as recited in claim 10 wherein the threshold is about 15 degrees.

12. (original) A method as recited in claim 10 wherein determining a rear side slip angle comprises determining a longitudinal vehicle velocity and a lateral vehicle velocity and determining the side slip angle as a function of the longitudinal vehicle velocity and the lateral vehicle velocity.

13. (original) A method as recited in claim 10 wherein determining a look ahead scale factor comprises determining a look ahead factor as a function of the rear side slip angle.

14. (original) A method as recited in claim 10 wherein determining a look ahead scale factor comprises determining a look ahead factor as a function of an exponential of the rear side slip angle.

15. (original) A method as recited in claim 10 wherein determining a look ahead scale factor comprises determining a look ahead factor as a function of an exponential of a product of the rear side slip angle and a constant.

16. (original) A method as recited in claim 15 wherein the constant is about .02.

17. (previously presented) A method as recited in claim 10 further comprising, when the rear side slip angle is not greater than the threshold, determining an unscaled look ahead factor.

U.S.S.N. 10/707,366

- 6 -

81092490FGT1889

18. (original) A method as recited in claim 10 further comprising performing the step of determining a steering wheel angle input when the vehicle is not on target.

19. (currently amended) A method of operating a vehicle computer model having vehicle information and path information therein comprising:

determining a rear side slip angle of a vehicle computer model;

determining a look ahead point;

when the rear side slip angle is greater than a threshold, determining a look ahead scale factor;

when the rear side slip angle is greater than the threshold, increasing the look ahead point as a function of the look ahead scale factor;

when the rear side slip angle is less than the threshold, maintaining the look ahead point;

when the vehicle model is off target, determining a steering wheel angle input to the computer model as a function of an error between the look ahead point and the intended path; and

operating the computer model with the steering wheel angle input; and  
outputting the results of the operating step.

20. (original) A method as recited in claim 19 wherein determining a look ahead scale factor comprises determining a look ahead factor as a function of an exponential of the rear side slip angle.